

# Evacuation method for bottles etc. in bottle filling machines uses vacuum pump to remove air and gas form bottles and adiabatic expansion of removed gas to extract heat

**Publication number:** DE19927726 (A1)  
**Publication date:** 2000-12-21  
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**Classification:**  
**- international:** *B67C3/22; B67C7/00; F04B39/06; B67C3/02; B67C7/00; F04B39/06; (IPC1-7): B67C3/02; F04B53/08*  
**- European:** B67C3/22; B67C7/00; F04B39/06  
**Application number:** DE19991027726 19990617  
**Priority number(s):** DE19991027726 19990617

## Abstract of **DE 19927726 (A1)**

A vacuum pump (11) is connected to a container (1) e.g. a bottle, via a gas pipe, and the waste heat from the pump is removed by cooling. The gas flowing from bottle to pump is expanded within the gas pipe (12) by an adiabatic process, and heat is extracted. For this purpose, the gas is sucked through a throttle valve (13). The gas pressure in front of and behind the valve is determined, and the valve is regulated dependent upon the differential. Before a bottle is filled with drink, air is sucked out by the pump, the bottle is filled with scavenging gas, the gas is removed, and subjected to expansion after every stage.

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